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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,224	07/17/2006	Yasuhide Onozawa	172A 3888 PCT	2741

7590 02/26/2009
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EXAMINER

SAN MARTIN, JAYDI A

ART UNIT	PAPER NUMBER
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2834

MAIL DATE	DELIVERY MODE
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02/26/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/586,224	ONOZAWA, YASUhide	
	Examiner	Art Unit	
	Jaydi SanMartin	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5 is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/07, 7/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:
 - The specification cannot refer back to the claims. See paragraph [0005], pages 6- 8. Appropriate correction is required.

Claim Objections

2. Claims 1-5 are objected to because of the following informalities: It is not clear from the claim language if the applicant is increasing the thermal or the electrical conductivity of the piezoelectric substrate.
 3. Claim 1, line 14: "said flip chip" lacks antecedent basis.
 4. Claim 3: "one of such metals" lacks antecedent basis.
- Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa (US6914367 or US 2003-0112986) in view of Bordui (US 6319430).

Furukawa discloses a SAW element comprising a mounting substrate (1), external electrodes (9), conductor traces (6); a SAW chip provided with a piezoelectric substrate (3) made of LiTaO₃ or LiNbO₃, and connection pads (5) connected to the conductor traces via conductor

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bumps (2); and sealing resin layer coated all over the outer surface of the flip-chip mounted SAW chip and down to the top surface of the mounting substrate to form an airtight space between the IDT (4) and the mounting substrate.

However, Furukawa fails to disclose the suppression of the charges formed on the resin by increasing the conductivity of the piezoelectric substrate.

Bordui discloses preconditioning crystals of lithium niobate and lithium tantalate to intentionally increase their electrical conductivity, thus providing crystals with an increased ability to reduce surface charging. Reducing surface charging reduces the risk that the crystals may catastrophically discharge, and adversely affect the performance of devices in which the crystal is incorporated. (Abstract)

Therefore, it would have been obvious at the time of the invention was made to increase the conductivity of the piezoelectric substrate to reduce the surface charges as disclosed by Bordui.

Regarding claim 2, it should be noted that the limitations are directed to the method of making the device and not to the structure of the device itself. The limitation fails to structurally define the invention. Little patentable weight has been given to the limitation.

Regarding claim 3, Bordui discloses increasing the conductivity of the piezoelectric substrate, but fails to disclose the use of metal impurities to do so. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use metal impurities such as Fe, Zr, Al, Cr, Mn, Rh, Cu, V, W or U since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Allowable Subject Matter

7. Claim 5 is allowed.
8. The references of the Prior Art of Record fail to teach or suggest either alone or in obvious combination the limitations as set forth in claim 5, and specifically comprising the SAW element as disclosed in combination with the limitation of the specific relative dielectric constants, volume resistivity and thickness of the resin layer.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jaydi SanMartin whose telephone number is (571)272-2018. The examiner can normally be reached on M-Th 9-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Quyen Leung can be reached on 571-272-8188. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jaydi SanMartin/
Primary Examiner, Art Unit 2834

2/16/09